

Humane Handling of Livestock

OBJECTIVES

Upon completion of this module you will be able to accomplish the following without the aid of references:

1. Select, from a list of definitions, the one that best describes the terms:
 - a. Surgical anesthesia.
 - b. Ritual slaughter.
2. Describe the four approved methods for stunning animals as identified in the Humane Slaughter Act and the regulations.
3. Select, from a list of general humane slaughter or handling responsibilities, those that are applicable to the establishment, to FSIS, or both.
4. Determine if a description of the way an animal is stunned is in compliance with the federal humane slaughter law.
5. Describe a method of slaughter that is exempt from stunning.
6. Select, from a list describing various methods used to move a disabled, yet conscious, animal from one area to another area, those methods that are acceptable according to the Humane Slaughter Act.
7. Compare a description of the way an animal is handled to the federal humane slaughter law to determine if the handling is in compliance with the Humane Slaughter Act.
8. Identify, from descriptions of establishment conditions in or around the livestock holding pens, those that might cause injury to animals.
9. Describe the establishment's responsibilities for animals that are withheld from slaughter for longer than 24 hours.
10. Describe the action an inspector should take when he/she observes an incident of inhumane treatment in an official establishment as a result of:
 - a. Facility deficiencies, disrepair, or equipment breakdown.
 - b. Establishment employee actions in the handling or moving of the livestock.
 - c. Improper stunning.

REFERENCES

1. MPI Regulations
Section 305.5
9CFR 313: Humane Slaughter of Livestock
9CFR 352.10: Exotic Animals; Voluntary Inspection. Ante-mortem inspection
2. MPI Manual Part 10: Slaughter, Dressing, and Chilling: Humane Slaughter;
Subpart 10.1- Livestock
3. Employee Development Guide
4. MPI Guideline #6
5. Humane Methods of Slaughter Act of 1978
6. FSIS Directive 6900.1 Revision 1- "Humane Handling of Disabled Livestock"
7. FSIS Directive 6900.2 Revision 1- "Humane Handling and Slaughter of Livestock"

8. FSIS Notice 35-04: "Documentation of Humane Handling Activities"
9. FSIS Notice 37-95: "Alternative Ante-mortem Inspection Procedures"

INTRODUCTION

The use of humane methods in the slaughter and handling of livestock prevents needless suffering, results in safer working conditions for packing house workers, improves the quality of meat products, and decreases a significant financial loss to meat packers. Prior to 1958 there were no laws in the United States governing humane slaughter practices. The majority of the meat industry recognized the benefits of humane slaughter practices and their use was widely accepted. Primarily there were economic incentives; humane treatment generally resulted in less bruising and therefore less trimming of the dressed carcass. Still there was concern from many Americans over isolated, but persistent reports of continued cruelty to livestock at a few plants.

The first law passed to address these concerns was the Humane Methods of Slaughter Act of 1958. This law was voluntary for meat packers who did not sell meat to the federal government. It required that livestock be rendered insensible to pain by a blow, gunshot, or electrical or chemical means that is rapid and effective before shackling, hoisting, casting, or cutting.

The law that is currently enforced by the USDA is the Humane Slaughter Act of 1978. An important responsibility of yours is to monitor plant facilities and the activities of plant personnel to assure compliance with this law. The 1978 Act made the proper treatment and humane handling of all food animals slaughtered in USDA inspected slaughter plants mandatory. This includes cattle, calves, horses, mules, sheep, goats, swine, and other livestock. Once again, it required that livestock are rendered insensible to pain before being shackled, hoisted, cast, or cut. It also mandated several additional specific requirements to the humane handling of animals in meat packing plants in the United States. These include: "downers" cannot be dragged while conscious, workers are not allowed to physically retaliate against animals, water must be provided to animals at all times, and cattle prods must produce not more than 50 volts.

The only exception to this law is ritual slaughter. Animals may be approved for slaughter in accordance with the ritual requirements of a religious faith that prescribes a method of slaughter where the animal suffers loss of consciousness by anemia of the brain caused by the simultaneous and instantaneous severance of the carotid arteries with a sharp instrument. Examples of ritual slaughter include Kosher slaughter and Islamic (Halal) slaughter.

The regulations describe four acceptable methods for producing a state of surgical anesthesia (surgical anesthesia is defined as a state where the animal feels no painful sensations). The four acceptable methods are:

- Chemical (Carbon Dioxide -CO₂)
- Mechanical (captive bolt)
- Mechanical (gunshot)
- Electrical (electrical current)

Carbon dioxide gas (CO₂) is approved for rendering swine, sheep, and calves unconscious. The gas must be administered in a way that produces surgical anesthesia quickly and calmly, with a minimum of excitement and discomfort to the animals. A carbon dioxide gas chamber is designed on the principle that carbon dioxide is heavier than normal atmospheric air. The chamber is open at both ends for the entry and exit of the animals to anesthetizing CO₂ concentrations. Once anesthesia has occurred, the animals are removed from the chamber and are ready to be shackled, hoisted, or placed on a table for bleeding. The establishment must maintain a uniform carbon dioxide concentration in the chamber so that the degree of anesthesia in exposed animals will be constant. All gas-producing and control equipment must be maintained in good repair and all indicators, instruments, and measuring devices must be available for inspection by FSIS.

There are two types of mechanical captive bolt stunners that may be used to produce immediate unconsciousness in cattle, sheep, goats, swine, horses, mules, and other equines. Both types have gun-type mechanisms that fire a bolt or shaft out of a muzzle. The bolt is discharged or propelled by a measured charge of gunpowder (a blank cartridge) or by accurately controlled compressed air. Both types must be operated by a well-trained and experienced establishment employee. The employee must be able to accurately and consistently position the stunning devices so that the bolt hits the skull at the right location to produce immediate unconsciousness. The employee must also be able to adjust the air pressure or detonation charge when the sex, the breed, or the size of the animal changes.

Captive bolts powered by compressed air must have accurate, constantly operating air pressure gauges. The gauges must be easily read and conveniently located for inspection by FSIS. When fired, the bolt in the penetrating type of captive bolt stunner penetrates the skull and enters the brain. Unconsciousness is caused by physical brain damage, sudden changes in intracranial pressure, and concussion. The brain from animals stunned with penetration captive bolts may be saved for edible purposes provided the establishment removes the large blood clots, bone splinters, hair, and debris from the brain.

Since the Bovine Spongiform Encephalopathy (BSE) finding in Washington State on December 2003 a number of policies were issued to protect the public health against BSE. One of these policies involved the prohibition of air-injection stunning of cattle (Federal Register, January 12, 2004; Docket No. 01-0331F). To ensure that portions of the brain are not dislocated into the tissues of the carcass as a consequence of humanely stunning cattle during the slaughter process FSIS issued the aforementioned interim final rule to ban the practice of air-injection stunning. As a result of this interim final rule, amendments to regulations 9 CFR 315.15(b)(2)(ii) were made which states *"Captive bolt stunners that deliberately inject compressed air into the cranium at the end of the penetration cycle shall not be used to stun cattle"*.

Many plants will utilize the non-penetration type captive bolt in order to avoid the time-consuming task of physically removing large blood clots, hair, bone, splinters, and debris from the brain. The non-penetration (concussion) bolt is similar to the penetrating bolt except that it has a bolt with a flattened circular head (mushroom head). When fired, the mushroom head meets the skull, but does not penetrate the brain. The animal becomes insensible from the impact or concussion.

Another type of mechanical device used for stunning is the firearm. It can be used on cattle, calves, sheep, goats, swine, horses, and mules. The caliber of the firearm must be such that a single shot of a bullet or projectile into the animal must produce immediate unconsciousness. If a small-bore firearm is used, it must use one of the following types of projectiles:

- hollow pointed bullets
- frangible iron/plastic composition bullets
- powdered iron missiles

Regardless of the type of projectile, a large percentage of the brain, cheek meat, and head trimmings may contain whole or fragmented bullets. Therefore, 310.18(B) of the Regulations states that after the head is inspected, the brains, cheek meat, and head trimmings may not be saved for human food. The only portion of the head that can be salvaged for human food is the tongue.

The final method approved for stunning animals is electric current. There are two types of electrical stunning, head only and cardiac. Cardiac stunning will cause death to the animal. Electrical stunning is used for hogs, calves, sheep, and goats. While approved for use in cattle, this is not a common practice. It is most widely used for hogs. The animal is physically restrained so that the electric current can be applied with a minimum of excitement and discomfort to the animal. The placement of the electrodes varies from plant to plant. It would not be uncommon to see the operator place one electrode on the head and the other electrode over the thoracic region. The current passing through the animal must be enough to ensure surgical anesthesia throughout the bleeding operation. The operator must control the timing, voltage, and current so that each animal is properly stunned. Animals must be either stunned or killed prior to being shackled, hoisted, thrown, cast, or cut. Animals should be stuck quickly after stunning (within 30 seconds) to prevent them from regaining consciousness during bleeding. If too much current is applied in the stunning process, hemorrhages or other tissue changes can occur that could interfere with the inspection procedure. Too high an electrical current can damage capillaries, resulting in multiple pin-point hemorrhages in the muscle tissue. This is commonly referred to as "splashing" or "speckling".

As previously mentioned, slaughtering is permitted without a stunning device in accordance with the ritual requirements of the Jewish (Kosher) faith. In common practice, each animal is shackled by a hind leg, while in the holding pen, and hoisted into the air; or, the animal is cut while restrained in a special pen prior to hoisting. The animal is fully conscious when the stick or cut takes place. The sticking is done by a Shochet (slaughterer) chosen from the community, trained in the laws of the orthodox religion, and supervised by a rabbi in his area. The cut is made with a razor sharp knife called a Chalef that is honed after each cut.

Besides monitoring the establishment's stunning procedures, FSIS must also monitor the establishment's humane handling in connection with slaughter. Personnel responsible for moving livestock, from the unloading ramps to the holding pens and from the holding pens to the stunning area, must do so with a minimum of excitement and discomfort to the animals. Livestock must not be driven faster than a normal walking speed. The ramps, driveways, and the floors of pens must be constructed and maintained so that the livestock have good footing. It may even be necessary for the plant to use sand during the winter to overcome slick conditions.

When moving animals the use of electric prods, canvas slappers, or any other type of implement must be minimized to prevent injury and excitement. The use of implements such as baseball bats, shovels, sharp prods, whips, and the like, which in the opinion of the inspector can or will cause injury, are prohibited.

Livestock must have access to water at all times while in holding pens. If they are held longer than 24 hours, they must also have access to feed and have enough room in the holding pen to lie down.

Livestock pens and driveways must be constructed so that animals are not driven around a lot of sharp corners. Pens, driveways, and ramps must be maintained in good repair. They must be kept free from sharp or protruding objects that can cause injury. Loose boards, splintered or broken planks, broken pipe rails, broken unloading ramps, and unnecessary openings where the head, feet, or legs of an animal may be injured must be repaired.

Disabled animals or those unable to move will be segregated into the covered suspect pen. The regulations strictly prohibit the dragging of a conscious animal that is unable to walk. The establishment must either stun these "downers" before dragging them or move the animals by placing them on a skid, stone boat, bucket lift, or some other type of equipment that is suitable for moving a conscious but disabled animal.

FSIS Directive 6900.1, Revision 1 permits inspection program personnel to either be outside transport vehicles or enter onto transport vehicles to conduct antemortem inspection if disabled livestock cannot be humanely removed from the vehicles by establishment employees. The decision to enter a transport vehicle to conduct antemortem inspection or to conduct antemortem inspection from outside the vehicle is to be made by each inspector individually and is completely voluntary. Inspection personnel may enter onto the transport vehicle or perform antemortem inspection from outside the transport vehicle if, in his or her professional opinion, he or she can safely and adequately conduct the antemortem inspection. No adverse or disciplinary action can or will be taken against any inspection program personnel choosing not to conduct antemortem inspection of disabled livestock on or from outside of a transport vehicle.

If you observe a breakdown in the establishment's humane handling procedures, you must take immediate action. For example, you may notice an employee driving livestock with an instrument (the edge of a shovel, a large board, or a baseball bat) that can cause injury. Your action must be to inform plant management and insist that they correct the situation immediately. If the plant management fails to correct the situation, or fails to assure you that they will correct the situation, then you should attach a U.S. Rejected tag to the alleyway leading to the stunning area. You would not allow the plant to move any more livestock to the stunning area until you receive satisfactory assurance from the management that the inhumane handling will not happen again.

If you observe inhumane treatment to livestock as a result of facility deficiencies, you must also take immediate action. For example, you may notice broken pipes that are cutting and bruising the livestock. Again, your action must be to inform plant management and insist that they correct the deficiencies, then you should attach a U.S. rejected tag to the pens or alleyways with the broken pipes. You would not allow the plant to use the pens or alleyways until the deficiencies have been corrected.

Whenever a violation of the humane slaughter requirements is observed, inspection personnel should document the incident on a Noncompliance Record (NR), with a copy to be sent to the District Office. For repetitive deficiencies, follow the Regulations in Sec. 335.30.

FSIS Directive 6900.2 Revision 1 titled Humane Handling and Slaughter of Livestock was issued in November 2003. This directive informs inspection program personnel of the requirements, verification activities, and enforcement actions for ensuring that the handling and slaughter of livestock, including the slaughter of livestock by religious ritual methods, is humane. This directive explains how inspection program personnel should approach these activities.

The Agency has begun in year 2003 to incorporate the new Administrative Enforcement Reports (AER). The AER applies in all situations including humane handling. It is a reporting method that demonstrates that FSIS has an effective and efficient means to document and maintain administrative enforcement actions taken under the rules of practice.

An AER should be started when an establishment demonstrates repetitive non compliances or a failure to effectively implement the humane handling program (system) at the establishment. Indications that the humane handling system may be out of control could be multiple Humane Handling NRs with different root causes, when taken as a whole demonstrate a failure by the plant to effectively implement their humane handling program.

The AER file for humane handling could include:

- noncompliance records
- DVMS reports
- correspondence/meeting notes/memos detailing humane handling discussions between plant management and the IIC
- statements from witnesses of the deviations
- administrative enforcement letters and plant responses to them

Under the Rules of Practice, 9 CFR 500.3(b) the VPHO can suspend assignment of inspectors at an establishment without prior notification for humane handling deficiencies. There are questions you should ask to help make this determination. Is the deficiency egregious enough to warrant immediate suspension? Examples of egregious humane handling deviations could include:

- shackling and hoisting conscious animals
- cutting/skinning conscious animals
- dragging of conscious animals/downers
- beating an animal with an unreasonable amount of force
- any activity being performed without any other purpose than to inflict pain and/or suffering on an animal

This list is just an example of some activities that could be considered egregious, but by no means is exhaustive. Each inhumane activity needs to be assessed individually by

the IIC. The IIC is authorized to take the immediate suspension if the situation warrants it.

If the incident of inhumane handling does not warrant immediate suspension, it should be documented on a noncompliance record (NR). If a number of NRs are issued for the same root cause, or there are multiple NRs for different root causes, but together they demonstrate an overall failure in the humane handling system at the establishment, the District Office can initiate an administrative action. This action would be at the advice of the IIC, the FLS, or the DVMS who is monitoring NR activity in the district. To prevent the inhumane slaughtering or handling of livestock, the Administrator may determine that it necessary to temporarily suspend the official establishment's inspection service.

To use a systems thinking approach in viewing humane handling issues you need to not focus solely on the one noncompliance that has occurred but instead, see the whole humane handling system at the plant. It will be important for you to develop your skills on looking at the whole picture and fitting the evidence together that may tell you if the humane handling system is in control or out of control. Each noncompliance will be addressed appropriately per the rules of practice, but your job does not stop there. As a noncompliance happens you should analyze how the system is doing as a whole.

WORKSHOP

Mark your choice(s) with an "X" in the space provided.

1. Which of the following could be deficiencies that could cause injury or discomfort to animals during unloading, weighing, or driving to the stunning area?

_____ an unloading ramp with a 2-inch section of the planking missing

_____ several bolts protruding from the pen posts

_____ ante-mortem pens not covered

_____ icy runways

_____ floors in the pens are smooth concrete

2. "Surgical Anesthesia" is best described as:

_____ Drug or implement used to render the animal unconscious.

_____ A state where the animal feels no painful sensations

3. "Ritual Slaughter" is best described as:

_____ A method of slaughter dictated by a religious group

_____ A method of slaughter that requires the animal to be bled prior to loss of consciousness

_____ Both of the above

4. In your opinion, which implements or methods if not used in excess could be used to drive or move livestock and be acceptable to Part 313 of the Regulations?

_____ Canvas slapper

_____ Wooden club

_____ Battery- operated prod

_____ Bull whip

_____ Electric prod attached to AC current (transformer available)

_____ Whistle

_____ Electric prod attached to AC current (no transformer available)

_____ Flat- blade shovel

- ☐ Light leather strap, 2 inches wide
 - ☐ Hand- held metal prod
 - ☐ Lead goat
5. List the four approved methods for humanely stunning animals.
6. Animals that are delivered to the slaughter plant at 3:30 p.m. on Monday are intended to be slaughtered no later than noon on Tuesday would require both water and feed.
- ☐ True
 - ☐ False
7. From the following list of responsibilities write the letter "I" opposite those that are inspector's responsibilities and the letter "E" opposite those that are the establishment's responsibilities.
- ☐ Provide adequate pens in good repair
 - ☐ Adhere to all humane slaughter requirements
 - ☐ Frequently observe stunning procedures to determine whether livestock are insensible to pain before shackling and bleeding
 - ☐ Provide water and feed when necessary for animals
 - ☐ Report any deviation from acceptable humane practices
 - ☐ Provide acceptable means to move disabled animals
 - ☐ Reject areas/ equipment when inhumane treatment is observed
8. You are performing the antemortem assignment and you observe a plant employee driving animals with a sharp pointed implement. Which of the following statements best describes the action you should take as identified in the regulations?
- ☐ Tell the plant employee to stop using the pointed implement
 - ☐ Inform the plant management of the incident and request that they take the necessary steps to prevent a recurrence

- _____ Notify the district manager and the Humane Society
9. An animal that is conscious, but not able to stand or walk, should be moved by which of the following methods?
- _____ Loading the animal onto a skid, stone boat, bucket lift, or any other method that will not, in your opinion, cause undue excitement and/ or pain
- _____ Allow the establishment to stun the animal then allow it to be dragged
- _____ Either of the above
- _____ None of the above
10. An injured but alert U.S. suspect may be dragged from the suspect pen to the knocking box.
- _____ True
- _____ False
11. The plant is using firearms to stun livestock. Which of the following is a true statement?
- _____ Condemn both the heads and the tongues if hollow-pointed bullets are used
- _____ Condemn the tongues but save the heads if frangible bullets are used
- _____ Condemn the heads but may save the tongues regardless of the type of bullets used
12. Can an establishment's inspection service be suspended if it has a history of treating livestock inhumanely?
- _____ Yes
- _____ No